



Standard Specification for *Cryptolaemus montrouzieri* Mulsant (Coleoptera: Coccinellidae)¹

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1. Scope

1.1 This specification covers information on and the test method for determining purity, sex ratio, and number of adults in shipments of the predatory beetle *Cryptolaemus montrouzieri*.

2. Referenced Documents

2.1 *ASTM Standards*:²

E 2200 Specification for Information Included With Packaging of Multi-cellular Biological Control Organisms

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *carrier*—shredded paper.

3.1.2 *life stage when shipped*—adult.

3.1.3 *name of product*—*Cryptolaemus montrouzieri* Mulsant.

3.1.4 *preferred host prey*—mealybugs.

4. Classification

4.1 *Phylum*—Arthropoda.

4.2 *Class*—Insecta.

4.3 *Order*—Coleoptera.

4.4 *Family*—Coccinellidae.

4.5 *Genus*—*Cryptolaemus*.

4.6 *Species*—*montrouzieri*.

TEST METHOD—DETERMINING THE PURITY, SEX RATIO, AND NUMBER OF ADULTS IN SHIPMENTS OF *C. montrouzieri*

5. Summary of Test Method

5.1 This test method describes a method of counting the number of *C. montrouzieri* beetles packaged in a carrier.

5.2 The number of *C. montrouzieri* will be determined by examining a minimum of three units and determining the mean value. In each container, live contaminants will be identified and recorded.

6. Significance and Use

6.1 The efficacy of mealybug control by *C. montrouzieri* depends on accurate release numbers of beetles, presence of male and female beetles, and absence of live product contaminants. Accurate packaging and maintenance of purity and viability of *C. montrouzieri* shipments is, therefore, essential for the effective management of the target pest. This test method is intended for use by producers and end-users of the specified biological control agent. It is complementary to the quality guidelines for *Cryptolaemus montrouzieri*³.

7. Materials

7.1 Dissecting microscope or headband magnifier (7 to 10×).

7.2 30 DR snap-top plastic vial.

7.3 Pharmaceutical pill counting tray.

7.4 Fine-pointed No. 5/0 paint brush.

8. Test Unit

8.1 A single container with *C. montrouzieri* is considered a test unit. A minimum of three containers per shipment will be randomly selected from the shipping box.

9. Pre-Test Conditions

9.1 If samples must be held before testing, keep at 15°C, relative humidity 60 to 90 %, for a maximum of 24 h.

9.2 Chill beetles at 10°C for one hour prior to counting.

10. Sampling

10.1 Specify the number of adults that are expected in each test unit as indicated on the package before commencing test.

11. Counting Procedure and Sex Ratio Determination

11.1 Carefully remove any packing material by hand, allowing the beetles to drop back into container. If beetles have been

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Developed by the International Organization of Biological Control and published in Lenteren, J. C. van (ed.), 2003.